THE CROWNED PIGEON.

The crowned pigeon (*Goura coronata*), shown in our illustration, is the largest and most conspicuous of its tribe. This family (*Gouridæ*) embraces three known species, found in New Guinea and the neighboring islands of the Indian Sea. Two of the species are often seen in our zoological gardens.

The crowned pigeon is about seventy-five centimeters long, its wings thirty-eight centimeters, and its tail twenty-six centimeters long. The general color of its plumage is a light slate blue, somewhat darker upon the tail and wings. The quill feathers of the wings are black at the root, with a patch of white and maroon in the center; the tail feathers have a broad band of slate gray at the end; the eye is scarlet, the bill horn color, the foot red.

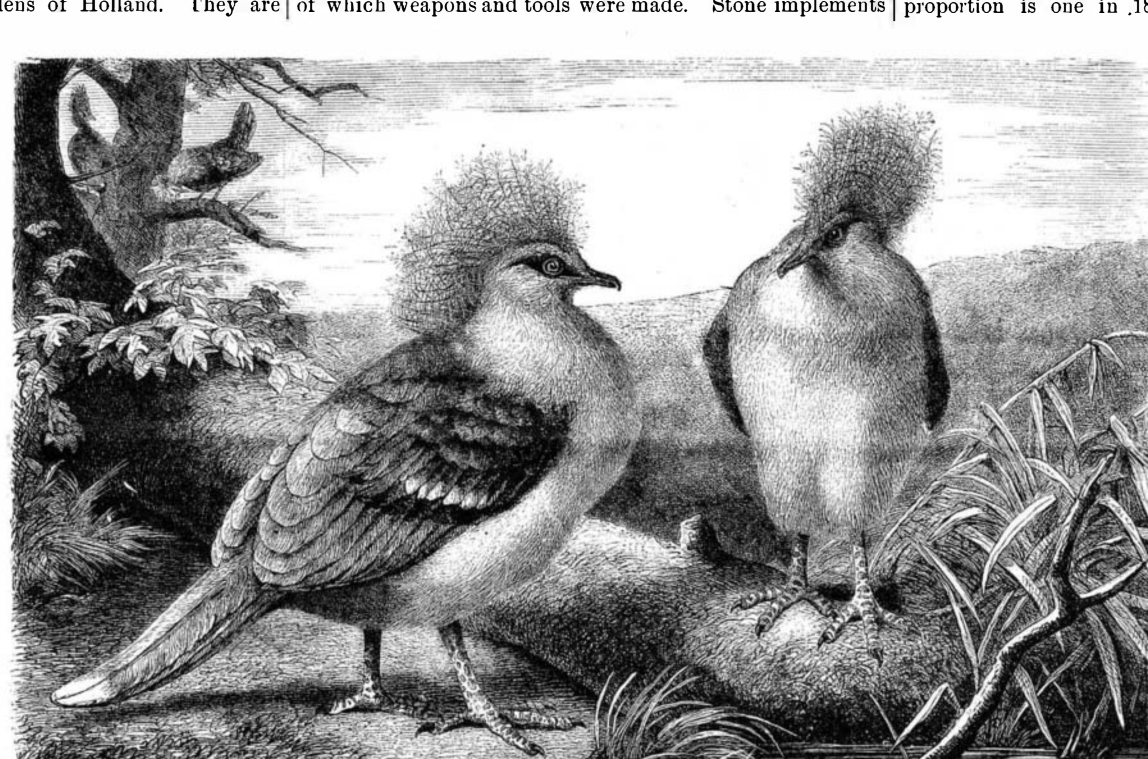
In the year 1699 the elder Dampier saw the crowned pigeon in its native country; later several were carried to the East Indies and the island of Sunda, where they were kept in yards like hens. They were also taken to Holland, and were found in the collections of rich amateurs. Until recently very little was known of their wild life.

Rosenberg says: "These birds live in great numbers upon the coasts of New Guinea, also upon the islands of Salawati and Misul. In their manner of life they resemble the pheasants, roving in small flocks around the forests."

Wallace has often seen them in New Guinea running along the forest paths. They spend the greater part of the day upon the ground, eating the fallen fruits, and only fly, when frightened, to the lower branches of the nearest tree. They choose also the low branches for a roosting place. Rosenberg writes that he obtained a female bird while sitting upon her nest. The nest consisted of twigs loosely put together, and contained a young bird just escaping from the shell.

At the present time these pigeons are found most frequently in the zoological gardens of Holland. They are kept quite easily on a frugal diet, and bear the winter very well, if put into sheltered rooms. A large number of these pigeons died in the London Zoological Gardens, and Mitchell says that the only remaining pair were placed in a room in the old bird house. In the beginning of August they commenced to build a nest. In the open part of the bird house there was a stout branch of a tree, about two meters from the ground, which served as a perch. Upon the outermost point of this branch they carried small twigs, which were given them for this purpose, and tried in vain to build a nest upon this slippery and unsatisfactory foundation. The attentive keeper perceived their perplexity and nailed a broad piece of basket work to the branch; then they began to build in earnest, the male carrying the twigs and the female doing the work. The nest was completed on the 15th of August. An egg was laid on this same day, it is thought, although the keeper could not see it, as it was constantly covered by one or the other of the birds. The nest was not far from the outer wall of the bird house, and during the brooding time thousands of visitors passed by it. The keeper was only able to see the egg once, at a time when one bird relieved the other. The young bird left the shell on the 13th of September, after twenty-eight days of brooding. It continued to be sheltered and fed by the parents, who hovered over it. On the morning of the 17th it was found dead in the nest, whether from an excess of care or by accident is not known. The mother hovered over the dead bird and warmed it with her breast as if she could not believe it dead.

"The cry of this bird is loud and sonorous, and every time it utters this note it bows its head so low that the crest sweeps the ground. Its flesh is spoken highly of by those who have eaten it."—*From Brehm's Animal Life.*



THE CROWNED PIGEON.—(GOURA CORONATA.)

Meat.

The value of meat as a food is due in a degree to its heat-producing properties, though in this respect it is surpassed by fatty and amyloid substances. It is as a tissue building material, and as an excitant of assimilative changes in the tissues, both with regard to itself and to non-nitrogenous foods, that it is most useful. It is stimulant as well as nutritive, and it therefore holds a deservedly high place in the daily dietary. Experiment has shown that three-quarters of a pound of lean meat fairly represents the quantity per diem which, taken with other less nitrogenous matter, suffices to maintain a person of average size and weight in a normal state of health. Some there are who largely exceed this standard, eating freely of meat at every meal, and living all the time quiet, sedentary lives. Such carnivorous feeders sooner or later pay a penalty by suffering attacks of gout or other disorders of indulgence. But it is equally important to note that many others, especially women, healthy in all points but for their innutrition, are apt to err as far on the other side. Thus one meets with people who consume about a pound of butcher's meat in a week, or not even that. This fact has been fully brought out by Dr. Graily Hewitt, in his address to the Obstetrical Section at the recent meeting of the British Medical Association. He has likewise with much probability assigned this defect of diet as the chief cause of that general "weakness" which is so common among the antecedents of uterine displacement. The experience of many practitioners will confirm his observation. Different causes are at work to produce this kind of underfeeding—too rigid domestic economy, theoretical prejudices, the fastidious disinclination for food which comes of a languid indoor life without sufficient bodily exercise, tight lacing perhaps, and many more. These difficulties are all more or less removable, unless, indeed, where absolute poverty forms the impediment. No effort should be spared to remove them. The advantages derived from a diet containing a fair amount of solid animal food could not be obtained from a purely vegetable or milk regimen without either unnecessarily burdening the digestive system with much surplus material, or, on the other hand, requiring such revolutionary changes as to quantity and quality of food and times of eating as would probably altogether prevent its general adoption, even were that desirable, into household management. In our opinion, such changes are not desirable, as being inadequate to secure their purpose.—*Lancet.*

Stone Implements.

Herr Reyes, in a recent essay upon the use of stone implements by ancient races, has adduced some interesting considerations to prove the persistence of their use during the succeeding periods when metal began to form the material of which weapons and tools were made. Stone implements were employed by nations at a time when they were well acquainted with the preparation of the hard metals. Thus the Egyptians used flint chisels and granite sledges in the quarries of Mt. Sinai. In the excavations at Syene stone tools have been found. The Romans used stone chisels in the gold mines of upper Egypt. The Assyrians at the zenith of their power used stone axes along with metallic weapons. The Chinese were armed with stone weapons when they (2200 B. C.) descended upon the plains and subjugated a race using metals. The Mexicans have wrought delicate sculptures on stone with stone implements. In the mines of Spain and Sardinia stone hammers were in use during historic times. Many reasons explain these survivals. Conservative habits prolong the use of old and valued tools. Religious ceremonies connected with their use, as the acts of embalming among the Egyptians, circumcision with the Jews, sacrificial knives with the Phœnicians and Etruscans, maintained the employment of stone in such rites from traditional and reverent motives. Again, the poorer classes could not afford the purchase of the new and dearer implements, and used the older and cheaper material for the construction of their toools. The new metallic objects were probably not always able to replace in efficiency their stone counterparts. Workmen were more expert in the use of the stone than the metallic implements.

Again, linguistic evidence supports these conclusions. The Basque names for weapons and tools imply the use of stone; ax is a "*big stone*," hoe a "*scraping stone*," knife a "*little stone*," or stone chip. The holy spear of India is named Akman, *i. e., sling stone, thunderbolt.* The god Thor is armed with a stone sledge. Our word *hammer* meant originally *stone, cliff*, and later acquired the associated idea of "*a stone to strike with.*" The German word *Messer* originally meant *ess stein, i. e.*, eating stone. *Hellebarte*, English halberd, meant "beard-shaped stone," stone ax. In the Indian and German myths stone weapons take an important place. From which the author concludes that these peoples had reached the advanced stage of mental development implied in these legends and stories, before their chiefs and heroes had replaced their stone with metal weapons. On the other hand, the races of southern Europe describe the heroes of their myths as fighting with metal armor only, which implies the origin of these tales at a time when the preparation of metal and the manufacture of metal weapons were understood. The same inference is drawn with regard to the Semito-Hamitic races.

From these examples it is clear that the stone age with different races did not correspond to any identical and prevalent condition of culture, but varied, as might have been presupposed, according to the varied and opposite conditions by which they were surrounded. And it also plainly is seen that the stone age itself but slowly yielded before the encroachments of its modern successor.

Longevity in the Different States.

A student of the reports of the tenth census has compiled a table for the Boston *Commonwealth* for the purpose of showing in what State or States one has the best chance for a long life. New Hampshire seems to him to be the favorite refuge of green old age, for he finds that one seventy fourth of the inhabitants are at least eighty years old. The proportion among native white males is 1 to 80, but the environment in New Hampshire seems to have been even more favorable to the preservation of life in the other sex, for the proportion among native white females is 1 in 58. Other New England States do not contain quite so many old persons, the average proportion for the six being 1 in 134. Coming to New York, he finds that for one person who has reached the age of eighty there are 161 who have not been so fortunate, and in the three Middle States the average proportion is one in 182. As he goes southward he discovers a greater preponderance of young blood, for in six South Atlantic States the average proportion is 1 in 203. The Gulf States afford a less attractive shelter for the aged, for the average is 1 in 300. In Texas, where so many worthy persons die with their boots on in the prime of life, only one octogenarian can be found in a group of 497 citizens. The average rises again in the interior States east of the Mississippi, but in the Great Lake States it falls to 1 in 263, a good old age being attained with the greatest difficulty in the wealthy and prosperous State of Illinois. In seven States west of the Mississippi River the aged rarely appear, for the average proportion is 1 in 453. In Iowa a crop of 334 persons yields only one who has reached the age of four score; in Minnesota, Nebraska, and Kansas only one of these aged citizens can be found in a group that would yield two in Iowa, and in Colorado 1,150 inhabitants must pass in review before an octogenarian comes in sight. The old are even more rare in Nevada, but in California and Oregon the proportion is nearly 1 in 500. If the inhabitants of the whole country could be assembled in two hundred and twenty-seven groups, it would be possible to place at the head of each group one patriarch of eighty or more years. So our student, assuming that long life is the inalienable right of those who reside in New Hampshire, Vermont, and Maine, cries: "Flee to the mountains of New England for health and longevity!"

The Postal Notes.

In an article advocating the substitution of fractional silver for small bank notes, the New York *Herald* says: "If Congress should withdraw from circulation all the small notes—ones, twos, and fives—for which postal notes answer all necessary purposes, it could safely order the coinage of at least two hundred and twenty-five millions, and perhaps two hundred and fifty millions, of small silver, and this would pass naturally and immediately into circulation as the small notes were called in."

It is difficult to see how the postal notes answer the purposes of circulation for small amounts. Their value depreciates after they are three months old. Then they must be returned to some office of issue and the holder must receipt for them, even though he cannot write, and they are made payable to bearer. There is no prospect—as there was probably no intention—that postal notes will become a circulating medium to the extent to trench upon the territory now occupied by the lower denominations of bank notes. *Underwood's Reporter* says that the postal note may easily be "raised," and if this is so, the fact alone will confine it to its legitimate use, a convenience of transmitting small sums by mail, taking the former place of scrip and the later place of postage stamps.

The Vienna Electrical Exhibition.

The Rev. Charles A. Stoddard, D.D., one of the editors of the New York *Observer*, is writing from abroad to his paper some very interesting letters descriptive of the places he visits, his experiences and observations as a traveler on the Continent. His last letter was from Vienna, and his account of the International Electrical Exhibition now open there is the best we have read. Mr. Stoddard pronounces the exhibition complete and beautiful, and says: "Aside from the telephones, telegraphs, and countless varieties of electrical appliances for generating and applying power, the two striking points of the exhibition are the Siemens electric railway and the numerous practical methods of lighting which are exhibited. The railway seems to be a success, its car runs back and forth constantly, carrying crowds of people to their own satisfaction and to that of the onlookers. It differs from the electric railway which was constructed in the environs of Berlin, in that the electricity is stored for the trip, beneath the car. In the Berlin railway it was communicated by means of a cable on posts along the line. The car runs rapidly and noiselessly and is easily controlled by the conductor.

"The lighting of the buildings by electricity is on a vast scale. There are numerous steam engines which drive the machines furnishing the electricity, and the immense hall when lighted was as bright as day. There are English and American and German systems exhibited, and a series of rooms fitted up with extreme elegance illustrate the practical application of the electric current to the purposes of house lighting. No more beautiful and brilliant suites of apartments could be seen even in the palaces of kings. The Edison, Brush, Maxim, and Swan systems are each magnificently represented. The Swan light is white and more agreeable than the Brush or Maxim, but the yellow light of the Edison system, while it is accompanied by some heat, is upon the whole the most agreeable; all are brilliant, and all are painful to the eye after a few hours, but they are vastly superior to gaslight, and in due time the gas companies will pass away and their meters will be exhibited in the same museums with the instruments of extortion used by the Inquisition. The accuracy and perfection of some of the electrical machines made upon the Continent was worthy of notice. They were so steady and constant in the light which they furnished as to excite the admiration of all beholders. These lamps are called by different names, known to experts as the Pilsen, Ganz, Schuckert, and Schwerd machines. The Ganz lamp is the simplest in its construction and gives a steady light. It is a lamp with a single solenoid; the electric current enters through a lower, fixed carbon, passes into the solenoid's iron core, and by an ingenious but simple contrivance forms the arc upon a positive carbon.

"The possibility of turning on and off any number of incandescent lamps in one circuit, without regulating the main current, is shown in a very successful way. This will reduce the expense of electric lighting by removing the necessity for special apparatus designed to introduce a greater or less resistance into the circuit; and thus the main obstacle to the introduction of electric lighting, its great expense, bids fair to be modified by the inventions presented at the Vienna exhibition. Some of the designs shown are most beautiful. Besides ordinary chandeliers and brackets, there are bouquets of glass flowers, from which the light proceeds; fountains in the center of a room that seem to be throwing out crystal streams of light; rays of light flowing into the room without any jet or fixture being visible, a beautiful boudoir whose ceiling is pierced in manifold places in the form of little stars, and behind each opening an incandescent lamp is placed, so that the apartment seems starlit. To recount the wonders which have already flowed from the practical application of electricity, and which are on view at Vienna, would require," says Mr. Stoddard, "the knowledge of an electrician, the terminology of a machinist, and several issues of the New York *Observer*."

A Deep Artesian Well.

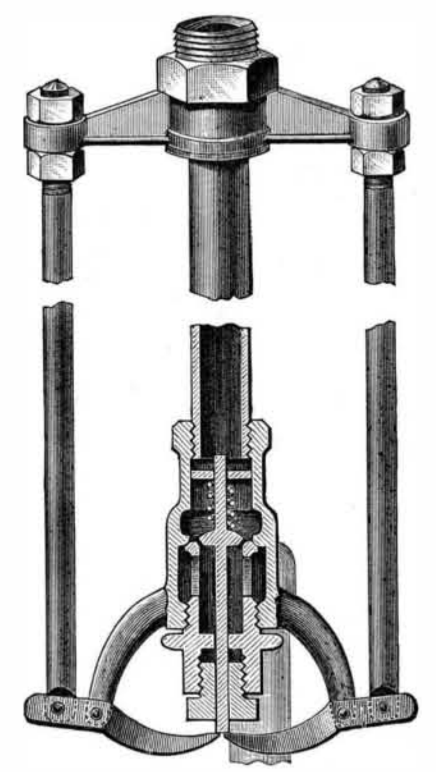
The artesian well now being drilled in the cellar of Cyrus W. Field's new building, at No. 1 Broad way, will be one of the deepest and largest in this country, and the tools used are among the heaviest ever made for this purpose. The bore is 8 inches in diameter, the usual size being from 4 to 6 inches. The hole in this well is between 300 and 400 feet deep, and progress is being made at the rate of 100 feet a week. An abundance of water has been reached, but not in sufficient quantity to justify a discontinuance of the drilling. The auger and bit weigh 4,800 pounds, and are lowered into the hole by a cable. One end of the cable is attached to an immense walking beam, by which it is raised and let fall with every stroke. A man stands constantly at the mouth of the well, turning the cable as the bit is raised, so that the boring is as perfectly done as if the rock were of pine and the auger of steel.

The hole is round and smooth, and almost polished by the constant friction. Every few hours the auger is drawn out and a large brass syringe inserted to suck out the rock sand which is made by the drilling. The bits are constantly being dulled by rocks, and a blacksmith's forge is necessary to sharpen and temper them to their work. One bit lasts usually about four hours, when it is removed and another one put in its place. Mr. C. J. Bushnell, the contractor for the work, estimates that the well will cost nearly $15,000, and will yield about 50 gallons of water per minute.—*Engineering News.*

THE CHAMPION STEAM TRAP.

This steam trap is simple in construction, effective in operation, and strictly automatic. It consists of a central tube of heavy brass passing through a crossbar, to each end of which is attached an iron rod by means of two nuts. The lower end of the brass tube screws into the top of the valve case. The rod of the valve is held in place at its upper extremity by a horizontal piece extending across the chamber, and its lower extremity passes through a stuffing box, and upon the outer end rest the two points of the curved levers. A spiral German silver spring tends at all times to close the valve.

From the lower part of two opposite sides of the case project two downwardly curving arms, whose ends are pivoted to two horizontally placed arms attached to the ends of



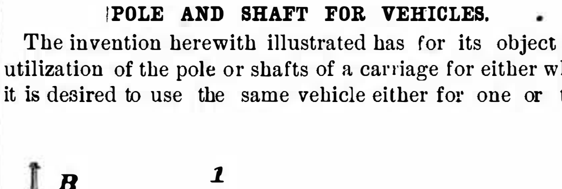
THE CHAMPION STEAM TRAP.

the iron rods. As the brass tube is expanded by the water passing through it the levers are depressed, the relative lengths of the long and short arms allowing the valve to move a great distance compared with the expansion of the tube. This enables the trap to act through a wide range of temperature and to discharge water almost cold or at the boiling point, as may be required. The valve is adjusted by means of the two nuts on each end of the iron rods. The ends, levers, and valves are made of hard brass. The expansion and contraction of the tube will not result in leakage or breakage, and the annoyances consequent upon such occurrences are done away with.

Further information may be obtained by addressing the manufacturers of the Champion Steam Trap, 821 Cherry Street, Philadelphia, or the New York agents, Messrs. H. T. Patterson & Co., 138 Centre Street.

POLE AND SHAFT FOR VEHICLES.

The invention herewith illustrated has for its object the utilization of the pole or shafts of a carriage for either when it is desired to use the same vehicle either for one or two



MARRETT'S POLE AND SHAFT FOR VEHICLES

horses, thus doing away with a separate pole and separate shaft. For this purpose a sectional construction is used, with socketed screw couplings, for uniting or disconnecting the sections of the pole and shafts, special devices being designed for other connections. This plan insures greater compactness when not in use, increased strength, facility of repair in case of breakage, and adaptability for stowing the parts away in the carriage when not in use. Figs. 1 and 3 represent the shafts and pole respectively. To change the shafts to the pole the whiffletree of the former is removed and two nearest couplings unscrewed, and the pole and its whiffletrees attached, the manner of making these connections being shown in the sectional drawings, Figs. 6 and 7. The two first sections of the shafts are then placed end to end and constitute the central portion of the pole, a side view of which is shown in Fig. 2. The screw coupling for the straight sections is shown in Fig. 4, and Fig. 5 shows the first joint of the shafts. All the details of construction will be readily understood from the engravings, in which like letters represent like parts.

This invention has been patented by Mr. Walter H. Marrett, of Brunswick, Maine.

Asphalt Pavement in St. Louis.

Pine Street, St. Louis, is being newly paved with asphaltum. The contract under which the work is being done, after providing for a foundation of cement, mortar, and concrete, provides that the pavement shall be completed as follows:

Upon the concrete foundation thus prepared shall be laid the wearing surface or pavement, the basis of which or paving cement must be pure Trinidad asphaltum unmixed with any of the products of coal tar. The wearing surface shall be composed of: 1. Refined Trinidad asphaltum. 2. Heavy petroleum oil. 3. Fine sand, containing not more than 1 per cent of hydrosilicate of alumina. 4. Fine powder of carbonate of lime.

The Trinidad asphaltum (so called), whether crude or refined, as found in this market, contains from 20 to 35 per cent of impurities, and is especially refined and brought to a uniform standard of purity and gravity.

The heavy petroleum oil, which may be the residuum by distillation of the petroleum oils as found in the market, generally contains water, light oils, coke, and a gummy substance soluble in water. The petroleum oil is freed from all impurities and brought to a specific gravity of from 18° to 22° Baume, and a fire test of 250° F.

By melting and mixing these two hydrocarbons, petroleum oil and asphaltum, the matrix of the pavement, called asphaltic cement, is manufactured, which cement has a fire test of 250° F., and a temperature of 60° F. has a specific gravity of 1·19.

They are mixed in the following proportions by weight: Pure asphalt, 100 parts; heavy petroleum oil, 15 to 20 parts.

The asphaltic cement being made in the manner above described, the pavement mixture is formed of the following materials, and in proportions stated: Asphaltic cement, from 12 to 15; sand, from 83 to 80; pulverized carbonate of lime, from 5 to 15.

In order to make the pavement homogeneous, the proportion of asphaltic cement must be varied according to the quality and character of the sand. The sand and asphaltic cement are heated separately to about 300° F. The pulverized carbonate of lime, while cold, is mixed with the hot sand in the required proportions, and is then mixed with the asphaltic cement at the required temperature and in the proper proportion, in a suitable apparatus, which will effect a perfect mixture.

The pavement mixture, prepared in the manner thus indicated, shall be laid on the foundation in two coats. The first coat, called cushion coat, shall contain from 2 to 4 per cent more asphaltic cement than given above; it shall be laid to such depth as will give a thickness of half an inch after being consolidated by a roller. The second coat, called surface coat, prepared as above specified, shall be laid on the cushion coat; it shall be brought to the ground in carts, at a temperature of about 250° F., and if the temperature of the air is less than 50°, iron carts with heating apparatus shall be used in order to maintain the proper temperature of the mixture. It shall then be carefully spread, by means of hot iron rakes, in such a manner as to give a uniform and regular grade, and to such depth that, after having having received its ultimate compression, it shall have a thickness of two inches. The surface shall then be compressed by hand rollers; after which a small amount of hydraulic cement shall be swept over it, and it shall then be thoroughly compressed by a steam roller, weighing not less than 250 pounds to the inch run, the rolling being continued for not less than five hours for every 1,000 yards of surface.

The powdered carbonate of lime shall be of such degree of fineness that 5 to 15 per cent by weight of the entire mixture for the pavement shall be an impalpable powder of limestone, and the whole of it shall pass a No. 26 screen. The sand shall be of such size that none of it shall pass a No. 80 screen, and the whole of it shall pass a No. 10 screen. In order to make the gutters, which are consolidated but little by traffic, entirely impervious to water, a width of twelve inches next the curb shall be coated with hot pure asphalt and smoothed with hot smoothing irons, in order to saturate the pavement to a certain depth with an excess of asphalt.

The St. Gothard.

The approaches to the St. Gothard Tunnel are really more wonderful than the great tunnel itself. To get up to the level of the tunnel the railway track makes many spirals, winding, in some instances, three times around a single mountain, on three terraces one above the other, through twisting tunnels. The curves are, however, so gradual as to be hardly noticeable unless one carries a compass. Then is seen the curious fact that the needle makes complete circuits, and is constantly shifting its position.